

CLAIMS:

1. A method for analyzing of speech, the method comprising the steps of:
 - inputting of a speech signal,
 - obtaining of the first harmonic of the speech signal,
 - determining of the phase-difference ($\Delta\phi$) between the speech signal and the first harmonic.
2. The method of claim 1, the determination of the phase difference comprising the steps of:
 - determining the location of a maximum of the speech signal,
 - determining the phase difference between the maximum and phase zero of the first harmonic of the speech signal.
3. The method of claims 1 or 2, whereby the speech signal is a diphone signal.
4. A method for synthesizing speech, the method comprising the steps of:
 - selecting of windowed diphone samples, the diphone samples being windowed by a window function being centered with respect to a phase angle which is determined by a phase difference between a speech signal and the first harmonic of the speech signal,
 - concatenating the selected windowed diphone samples.
5. The method of claim 4, the speech signal being a diphone signal.
6. The method of claims 4 or 5, the window function being a raised cosine or a triangular window.
7. The method of anyone of claims 4, 5 or 6 further comprising inputting of information being indicative of diphones and a pitch contour, the information forming the basis for selecting of the windowed diphone samples.

8. The method of anyone of the preceding claims 4 to 7, whereby the information is provided from a language processing module of a text-to-speech system.
- 5 9. The method of anyone of the preceding claims 4 to 8 further comprising:
- inputting of speech,
 - windowing the speech by means of the window function to obtain the windowed diphone samples.
- 10 10. A computer program product for performing a method in accordance with anyone of the preceding claims 1 to 9.
11. A speech analysis device comprising:
- means for inputting of a speech signal,
 - 15 – means for obtaining the first harmonic of the speech signal,
 - means for determining the phase difference ($\Delta\phi$) between the speech signal and the first harmonic.
12. The speech analysis device of claim 11, the means for determining the phase difference being adapted to determine a maximum of the speech signal and to determine a phase zero (ϕ_0) of the speech signal in order to determine the phase difference between the maximum of the speech signal and the phase zero.
- 20 13. The speech analysis device of claims 11 or 12, wherein the speech signal is a diphone signal.
- 25 14. A speech synthesis device comprising:
- means for selecting of windowed diphone samples, the diphone samples being windowed by a window function being centered with respect to a phase angle which is determined by a phase difference between a speech signal and the first harmonic of the speech signal,
 - 30 – means for concatenating the selected windowed diphone signals.

15. The speech synthesis device of claim 14, wherein the speech signal is a diphone signal.
16. The speech synthesis device of claims 14 or 15 the window function being a raised cosine or a triangular window.
17. The speech synthesis device of anyone of the claims 14, 15 or 16 further comprising means for inputting of information being indicative of diphones and a pitch contour, the means for selecting the windowed diphones being adapted to perform the selection based on the information.
18. A text-to-speech system comprising:
- language processing means for providing of information being indicative of diphones and a pitch contour,
 - speech synthesis means comprising means for selecting of windowed diphone samples based on the information, the diphone samples being windowed by a window function being centered with respect to a phase angle which is determined by a phase difference between a speech signal and a first harmonic of the speech signal and means for concatenating the selected windowed diphone samples.
19. The text-to-speech system of claim 18, whereby the window function is a raised cosine or a triangular window.
20. A speech processing system comprising:
- means for inputting of a signal comprising natural speech signal,
 - means for windowing the natural speech signal by means of a window function being centered with respect to a phase angle which is determined by a phase difference between a speech signal and the first harmonic of the speech signal to provide windowed diphone samples,
 - means for processing of the windowed diphone samples,
 - means for concatenating the selected windowed diphone samples.